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Tracking transfers: TB treatment completion among Ugandan prisoners

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Background: Uganda Prisons Service (UPS) is responsible for the health of approximately 32,500 inmates in 233 prisons. Inmates turn over frequently with approximately 100,000 entering/exiting the system per year; 55% are on remand awaiting trial. The 2011World Health Organization Ugandan TB incidence estimate was 193/100,000. A 2008 rapid prison assessment estimated TB prevalence at 654/100,000. However, little is known about TB treatment completion in sub-Saharan African prisons. We analyzed national UPS data to determine TB incidence and treatment completion in Ugandan prisons.

Methods & Materials: We conducted a retrospective study of all TB-diagnosed prisoners > 18 years of age recorded in UPS TB registers from June 2011-November 2012. Registers were analyzed for TB diagnosis, TB-HIV co-morbidity, and treatment outcome, which included: i) treatment completion (full prescribed duration documented), ii) default, iii) death, or iv) failure. We tracked transferred patients between prisons and recorded those released.

Results: A total of 469 prisoners were diagnosed with TB, resulting in an incidence of 955/100,000 person-years. Ninety-eight percent were male and 58% [95% confidence interval (CI): 53-62%] were HIV co-infected. Of 466 prisoners starting TB treatment: 48% [CI: 43-52%] completed treatment, 43% [CI: 39-48%] defaulted, 5% [CI: 3-7%] died, and 4% [CI: 2-5%] were still on treatment. During treatment, of 199 prisoners remaining in the same prison, 12% [CI: 7-16%] defaulted, and of 137 prisoners transferred, 53% [CI: 45-62%] defaulted. Of those defaulting in prison 77% [CI: 69-86%] defaulted after transfer. Of 130 prisoners released during treatment, 81% [CI: 74-88%] were lost to follow-up. In multivariable analysis, the odds for TB treatment default were 8.4 times greater among transferred prisoners than among prisoners who were not transferred during TB treatment. Sex, age, HIV status, and disease class were not associated with default.

Conclusion: TB incidence in Uganda prisons is five-fold higher than the general population and treatment completion is lower (48% versus 67%). Among those defaulting on treatment while in prison, the majority defaulted after prison transfer. Improved follow-up is urgently needed within prisons to ensure treatment completion post-transfer, and public clinic linkage upon release, to prevent possible development of multidrug-resistant TB.

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Expression of the CCR5 HIV co-receptor in women with genital schistosomiasis

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Background: Female genital schistosomiasis (FGS) is characterised by genital mucosal lesions called sandy patches causing inflammation and bleeding. Epidemiological evidence of a relationship between FGS and HIV has been found, but the biological mechanism behind the association is unknown. Heterosexual transmission is the most frequent mode of HIV transmission, and increased expression of the HIV co-receptor CCR5 is likely to cause enhanced susceptibility to HIV. This study set out to explore CCR5 on CD4+ T-cells in treated and untreated women with FGS.

Methods & Materials: Participants were recruited from a large school based study in KwaZulu-Natal, South Africa. Blood and endocervical cytobrush samples were collected from 19 young women with genital sandy patches detected by colposcopy. The negative controls consisted of 25 patients without genital lesions and with no *S. haematobium* ova found by urine microscopy. From the FGS positive group, 14 women were seen again 8 months after anti-schistosomal treatment. Flow cytometry analysis was run with an activation panel including the parameters CD3, CD4 and CCR5.

The Mann-Whitney U non-parametric test and the Wilcoxon signed rank test were used when comparing the groups.

Results: The expression of the co-receptor CCR5 on $CD4^+$ cells was higher in blood samples from FGS positives than FGS negatives (4.7% vs. 1.5%, $p = 0.018$). No significant difference was found in the genital samples ($p = 0.29$). After anti-schistosomal treatment, the CCR5 expression decreased in both blood and genital samples ($p = 0.036$ and 0.025, respectively).

Conclusion: The results support the assumption that FGS may increase the risk of HIV acquisition, not only through damage of the mucosal epithelial barrier, but also by altering the co-receptor expression on HIV target cell populations. Anti-schistosomal treatment may modify this effect.

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